

Amendments to the Specification

Please replace Paragraph [1] with the following amended paragraph:

The present invention relates to an array substrate, a method of manufacturing the array substrate, a liquid crystal display apparatus having the ~~arrays~~ array substrate and a method of manufacturing the liquid crystal display apparatus. More particularly, the present invention relates to an array substrate for a strong bonding with a color filter substrate, a method of manufacturing the array substrate, a liquid crystal display apparatus having the ~~arrays~~ array substrate and a method of manufacturing the liquid crystal display apparatus.

Please replace Paragraph [32] with the following amended paragraph:

The display region DR includes a plurality of gate lines 203 arranged in parallel to each other, and a plurality of data lines 102 arranged perpendicular to the gate lines 203. The gate lines 203 and the data lines 102 are on different layers and are electrically insulated from each other.

Please replace Paragraph [40] with the following amended paragraph:

Therefore, as long as the opening window 301 opens the insulation layer to increase the contact area, the shape of the opening window 301 is not limited. As an example, in FIG. 2, the opening window 301 extends in a longitudinal direction of the region SLR. The shape of the opening window 301, however, and the number of the opening ~~window~~ windows are not limited.

Please replace Paragraph [47] with the following amended paragraph:

The display region DR of the transparent substrate 304 includes a plurality of gate ~~electrode~~ electrodes G. A gate insulation layer 305 is formed on the first transparent substrate 304, such that the gate insulation layer 305 covers the gate electrode G. A source electrode S and a drain electrode D are formed over the gate insulation layer ~~[[D]]~~ 305. An insulation layer 306 is formed thereon. The insulation layer 306 includes an opening window 301 and a contact hole 513. The opening window 301 is formed in the sealine region SLR. The contact hole 513 exposes drain electrode D. A pixel electrode 103 formed on the insulation layer 306 is electrically connected to the drain electrode D via the contact hole 513.

Please replace Paragraph [49] with the following amended paragraph:

Aluminum neodymium (Al-Nd) alloy is deposited on the first transparent substrate 304 to form a layer. The layer comprising aluminum neodymium (Al-Nd) alloy is patterned via a photolithography process and etched to form a gate electrode G.

Please replace Paragraph [54] with the following amended paragraph:

The amorphous silicon layer 302 has a resistivity ~~ranged~~ ranging from about $10^{11}\Omega\text{cm}^{-1}$ to about $10^{12}\Omega\text{cm}^{-1}$. When a gate voltage is applied to the gate electrode G, the resistivity of the amorphous silicon layer 302 is lowered to be $10^5\Omega\text{cm}^{-1}$ to about $10^6\Omega\text{cm}^{-1}$. Therefore, current may pass through the amorphous silicon layer.

Please replace Paragraph [57] with the following amended paragraph:

A gate driving circuit 101 is in the peripheral region PR of the first transparent substrate 304. A data driving circuit (not shown) may be made in the form of a separate chip, and the chip is disposed in the peripheral region PR.

Please replace Paragraph [58] with the following amended paragraph:

After the drain and source electrodes D and S are formed, an insulation layer (or a first insulation layer 306) is formed. The insulation layer 306 increases ~~[[an]]~~ aperture ratio and luminance. The insulation layer 306 also includes a material capable of being patterned by a photolithography process.

Please replace Paragraph [61] with the following amended paragraph:

A contact hole 513 for exposing the drain electrode is formed at the insulation layer 306. The contact hole 513 and the opening window 301 may be formed via a same process or different ~~process~~ processes.

Please replace Paragraph [63] with the following amended paragraph:

The indium tin oxide and the indium zinc oxide materials have excellent conductivity and are also chemically and thermally stable.

Please replace Paragraph [69] with the following amended paragraph:

A liquid crystal display apparatus is classified into a stripe type, a mosaic type, a triangular type, etc., in accordance with an arrangement of the red, green and blue color filters. The stripe type is adequate for a monitor of a computer system, and the mosaic type and the triangular type are adequate for a television set.

Please replace Paragraph [75] with the following amended paragraph:

A metal black matrix is classified into a chromium (Cr) black matrix, a double-layered chromium black matrix (Cr/CrOx) or a triple-layered chromium black matrix (Cr/CrNx/CrOx). An organic black matrix is divided into a carbon black type black matrix, an RGB pigment black matrix, a dye dispersion type black matrix, and an RGB overlapping type black matrix.

Please replace Paragraph [77] with the following amended paragraph:

In the dyeing process, acryl resin, casein, gelatin, etc., are used as [[a]] coloring ~~resin~~ resins, and dye is used as a coloring matter. The dyeing process is adequate for a minute opening window, but the color filter 405 formed by the dyeing process has a low durability.

Please replace Paragraph [79] with the following amended paragraph:

In the pigment dispersion process, acryl resin is used as the coloring resin, and pigments are used as the coloring matter. The color filters 405 formed by the pigment dispersion process have a good lightproof property and a good thermal stability. However, an oxygen preventing layer is additionally required ~~additionally~~.

Please replace Paragraph [84] with the following amended paragraph:

When the acryl resin is used for the leveling layer 404, the acryl resin is mixed with a hardener to form the leveling layer 404. The polyimide resin is ~~costing much~~ expensive, but ~~the polyimide resin~~ has [[a]] good thermal stability.

Please replace Paragraph [89] with the following amended paragraph:

The color filter substrate 401 and the array substrate 100 are bonded together by the sealant ~~(408)~~ 408. The sealant 408 is formed along the sealine region SLR of FIG. 1, such that the sealant 408 surrounds the display region DR. A small portion of the sealant 408, however, is opened.

Please replace Paragraph [92] with the following amended paragraph:

When the color filter substrate 401 ~~[[are]]~~ is assembled with the array substrate 100, liquid ~~crystal~~ is crystals are injected into the space between the color substrate 401 and the array substrate 100 to form a liquid crystal layer.

Please replace Paragraph [93] with the following amended paragraph:

FIGS. 8 to 11 are schematic views showing a process of injecting liquid ~~crystal~~ crystals.

Please replace Paragraph [96] with the following amended paragraph:

Referring to FIG. 9, the chamber 600 is closed, and the bonded module 601 of the color filter substrate 401 and the array substrate 100 is dipped into the liquid crystal material 602. A pressure of the space between the color filter substrate 401 and the array substrate 100 is the same as the pressure of the chamber. Thus, the liquid crystal material is not injected into the space ~~between the space between~~ the color filter substrate 401 and the array substrate 100.

Please replace Paragraph [97] with the following amended paragraph:

Referring to FIGS. 10 and 11, the chamber 600 is opened and the inert gas is injected into the chamber to raise the pressure of the chamber. Then, the pressure of the chamber is higher than the pressure of the space between the color filter substrate 401 and the array substrate 100. Therefore, the liquid crystal material 602 is injected into the space between the color filter substrate 401 and the array substrate 100.